IDR RID Report

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Document DAAC LAN Architecture

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Section **Page** **Figure Table**

Category Name ISS Design
Actionee ECS
Sub Category Infrastructure
Subject Decision process for the use/non-use of IP over HiPPI

Description of Problem or Suggestion:

HiPPI switches are being introduced within some DAACs to meet network bandwidth requirements. There is not yet a decision as to whether to run IP over HiPPI or to use native protocols. This decision has major impacts upon higher level software (availability of ftp, DCE, etc.). It also may introduce excessive vendor-specific hardware dependencies. The decision needs to consider more than just raw performance.

Originator's Recommendation

Prepare a cost/benefit analysis documenting performance considerations, hardware dependencies, software to be written, life cycle support, training, ... By 12/15, prepare a plan to do this .

GSFC Response by: **GSFC Response Date**

HAIS Response by: E. Jallata **HAIS Schedule** 11/15/95
HAIS R. E. M. Armstrong **HAIS Response Date** 11/22/95

The decision process for the use/non-use of IP over HiPPI will follow the steps below:

1. IP over HiPPI throughput testing will be done.

Preliminary IP over HiPPI throughput tests have been done by ECS. Based on memory to memory TCP streams using SGI Challenge XL hosts (running the IRIX version 5.3 operating system), rates in excess of 55 MB/s have been achieved. SGI has also recently shown that rates in excess of 90 MB/s can be achieved on SGI Power Challenge hosts running the IRIX 6.1 operating system.
As a result, indications are that raw HiPPI will not be used for Release B networks.

2. If IP over HiPPI throughput exceeds the required disk I/O of a given host (not the maximum possible disk I/O), then IP over HiPPI will be used for the communication fabric between the Data Server and Processing hosts.

Current dynamic modeling results show that the network I/O throughput levels discussed above (in Step 1) exceed expected aggregate disk I/O rates.

Status **Closed** **Date Closed** **01/16/96** **Sponsor** **desJardins**

****** **Attachment if any** ******